

Appendix B

CLEANUP TEAM STAFF REPORT

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

July 2, 2014

File Nos. 07S0132 (KEB) and 07S0204 (KEB)

Cleanup Team Staff Report

**Basis for Recommendation to Adopt Initial Site Cleanup Requirements Orders (SCRs)
Naming:**

Gregory Village Partners, L.P., Village Builders, L.P., Joseph J. Lee, Grace M. Lee, Alan Choi, Kauen Choi, Joseph William O'Malley, and Floyd G. Taylor as Dischargers for the real property located at 1643 Contra Costa Boulevard, Pleasant Hill, Contra Costa County (Site 1), and

Chevron U.S.A. Inc., MB Enterprises, Inc., Philip M. Lehrman, Jane A. Lehrman, and Marjorie P. Robinson as Dischargers for the real property located at 1705 Contra Costa Boulevard, Pleasant Hill, Contra Costa County (Site 2)

I. Summary

The Water Board Staff Cleanup Team (Staff) recommends that the Water Board adopt individual SCRs for Sites 1 and 2. This Staff Report provides the technical basis for the following assertions:

1. Chlorinated volatile organic compounds (CVOCs) were released from a former waste oil tank and a former dry cleaner at Site 2 (see Section III below).
2. Chevron is appropriately named as a discharger at Site 2, based on its prior ownership and operations (see Section IV below).
3. A CVOC groundwater plume from Site 2 has commingled with a different CVOC groundwater plume from Site 1 (see Section V below).
4. Central Contra Costa Sanitary District (CCCSD) should not be named as a discharger in either SCR (see Section VI below).

II. General Background

The Sites 1 and 2 are located about 500 feet apart in a commercial district of Pleasant Hill, Contra Costa County (Figures 1 and 2). Staff has provided direct regulatory oversight of Site 1 since 2002 when Gregory Village Partners, L.P. (GVP) voluntarily enrolled in the Water Board's cost recovery program. GVP conducted site investigation and cleanup, and does not object to being named as a discharger in the SCR. Because both CVOCs and petroleum-related chemicals are present in groundwater beneath the eastern and southeastern areas of Site 1, GVP asked the Regional Water Board to issue a SCR for Site 2 naming Chevron and MB Enterprises, Inc. as dischargers. In addition, GVP and Chevron asserted that CCCSD should be named as a discharger in both SCRs.

Site 1 is a small suite located in the Gregory Village Shopping Center, a rectangular-shaped commercial parcel improved with a one-story building that was constructed in approximately 1950. The shopping center is bounded by Contra Costa Boulevard to the east, Doris Drive to the south, Doray Drive to the north, and single-family residential properties to the north and west. Based on soil, soil vapor, and groundwater analytical data, a dry cleaner at Site 1 released tetrachloroethylene (PCE) to the subsurface.

Site 2 is a rectangular-shaped parcel bounded by Contra Costa Boulevard to the east, Doris Drive to the north, Linda Drive to the west, and a parking lot and commercial building to the south. The main parking lot for the Gregory Village Shopping Center is located directly to the north of Doris Drive. Underground storage tanks (USTs) that leaked chemicals into the environment, along with a former dry cleaner, were once present on Site 2. Based on soil, soil vapor, and groundwater data, the subsurface beneath and downgradient of Site 2 is contaminated with multiple CVOCs (i.e., PCE, trichloroethylene or TCE, and the degradation compounds cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, and vinyl chloride) and various petroleum constituents.

The historical maximum detections of critical CVOCs associated with both sites are listed in Table 1. Groundwater data indicates the CVOC plume from Site 2 has commingled with the CVOC plume from Site 1 (Figure 3).

III. Substantial Evidence of CVOC Releases from the Former Steel Waste Oil UST and Former Dry Cleaner at Site 2

There are two suspected sources of these compounds at the Site: the former dry cleaner and the former waste oil tank. PCE is the major dry cleaning solvent used in the United States (Reich 1979). TCE is only rarely used in dry cleaning but is frequently used in metal degreasing (Schneberger 1979; Kimbrough et al. 1985).” The evidence present below supports staff’s assertion that unauthorized releases of several CVOCs, chiefly PCE (a common dry cleaning and automotive repair solvent) and trichloroethylene (TCE, a common metal degreaser and parts cleaner solvent), and various petroleum constituents (e.g., benzene, toluene, ethylbenzene, xylenes, MtBE, etc.), occurred at Site 2.

CVOC Release from Steel Waste Oil UST

An automotive fueling facility existed on the northern portion of Site 2 for over 60 years. Standard Oil, the predecessor of Chevron, operated from 1950 until 1977. Chevron operated at Site 2 from 1977 until 2003. Automotive repair work was conducted on Site 2 from approximately 1950 to 1987. In 1972, Standard Oil installed a 1,000-gallon steel waste oil UST at the time a large automotive repair and maintenance building was constructed at Site 2. A waste oil UST was used at Site 2 from 1972 to 1988.

Prior to the 1972 construction, the common (central) property line between 1705 and 1709 Contra Costa Boulevard was shifted to the south approximately 35 feet. The southern part of the new service station building, along with the steel waste oil UST, were positioned over a section of the former dry cleaner parcel. In late 1986, Chevron purchased the two

properties and merged them into a single parcel (the present-day 1705 Contra Costa Boulevard parcel).

In May 1986, fourteen years after the steel waste oil UST was installed, the UST was removed by Chevron and replaced with a double-walled, fiberglass waste oil UST. During the removal of the steel UST, the tank was severely damaged, and multiple holes were discovered. A soil sample collected beneath the tank pit, at a depth of eight feet, contained 11 mg/kg of “waste oil.” In January 1988, the fiberglass waste oil UST was removed during a major reconstruction project and found to be in good condition, with no holes or other damage observed.

It is common knowledge that PCE and TCE were used at automotive repair and maintenance facilities to clean brakes, carburetors, and fuel injection systems, and to degrease engines and other parts.^{1 2 3} USTs were commonly used to store waste oil and other chemicals by the automotive repair industry. Staff’s conclusion that the contamination emanating from Site 2 comes from these sources is consistent with Chevron’s consultant’s data. A February 3, 1989, report from EA Engineering, Science, and Technology, Inc. (EA) to Chevron regarding Site 2 states “The chlorinated hydrocarbons detected at the Pleasant Hill site are tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (DCE), trans-1,2-dichloroethylene (also DCE), vinyl chloride (VC), chloromethane, methylene chloride, chloroform, and 1,2-dichloroethane.

Soil Data

High CVOC soil concentrations generally reflect a specific release point/area. Figures 4 and 7 show the maximum concentrations of PCE and TCE detected in various soil samples collected within and near the former steel waste oil UST.

A soil sample collected within the tank pit at 10 feet below grade in 1988 contained 0.2 mg/kg of PCE and 0.035 mg/kg of TCE. In December 2011, a soil sample collected at a depth of five feet within the former waste oil UST excavation from vapor probe boring VP-1 contained PCE and TCE at 1.2 mg/kg and 1.4 mg/kg, respectively. Another soil sample collected at a depth of 9.5 feet from boring CPT-13, which was also advanced adjacent to/within the former waste oil UST pit, contained PCE at 0.34 mg/kg and TCE at 0.21 mg/kg, respectively.

¹ USEPA, November 1993, Economic Impact Analysis of the Halogenated Solvent Cleaning NESHAP, EPA-453/D-93-058.

² State of California Environmental Protection Agency/Air Resources Board, June 1997, Status Report, Perchloroethylene Needs Assessment for Automotive Consumer Products.

³ State of California Environmental Protection Agency, November 2006, Automotive Aerosol Cleaning Products: Low-VOC, Low Toxicity Alternatives, Report prepared by Institute for Research and Technical Assistance for the Department of Toxic Substances Control and City of Santa Monica.

For comparison, soil concentrations of 0.7 mg/kg for PCE and 0.46 mg/kg for TCE are sufficient to cause leaching to groundwater, according to this Regional Water Board's Environmental Screening Levels (ESLs).⁴

The soil data depicted on Figures 4 and 7 indicates a distinct CVOC release from the former steel waste oil UST.

Soil Vapor Data

High soil vapor concentrations generally reflect a specific release point/area. Figures 5 and 8 show the maximum concentrations of PCE and TCE detected in various soil vapor samples collected within and near the former steel waste oil UST.

In May 1988, very high concentrations of PCE (up to 3,247,500 $\mu\text{g}/\text{m}^3$) and TCE (up to 109,500 $\mu\text{g}/\text{m}^3$) were detected in a soil vapor sample collected from probe V10, which was advanced directly within the former waste oil UST pit. In contrast, the maximum PCE concentrations detected in V2 and V3, two 1988 soil vapor probes advanced about 25 feet north and 25 feet west of V10, were 40,800 $\mu\text{g}/\text{m}^3$ and 900,000 $\mu\text{g}/\text{m}^3$, respectively.

Soil vapor sampling conducted by Chevron in 2011 revealed the highest concentrations of PCE and TCE in soil vapor (e.g., 2,500,000 $\mu\text{g}/\text{m}^3$ and 2,100,000 $\mu\text{g}/\text{m}^3$, respectively), from VP-1, a soil vapor point installed less than 10 feet away from V10.

For comparison, this Regional Water Board's ESLs for the soil vapor to indoor air concern at commercial developments for PCE and TCE are 2,100 $\mu\text{g}/\text{m}^3$ and 3,000 $\mu\text{g}/\text{m}^3$, respectively.

The soil vapor data depicted on Figures 5 and 8 indicates a distinct CVOC release occurred from the former steel waste oil UST.

Groundwater Data

High groundwater concentrations generally reflect a specific release point/area. Figures 6 and 9 show the maximum concentrations of PCE and TCE detected in various groundwater samples collected within and near the former steel waste oil UST.

In December 1987-January 1988, approximately one year after Chevron purchased and merged the two properties into a single parcel, groundwater samples analyzed from on-Site monitoring well MW-C (located about 100 feet north of the former waste oil UST) detected PCE at 1,800 $\mu\text{g}/\text{L}$ and TCE at 570 $\mu\text{g}/\text{L}$. In January 1989, PCE and TCE were detected in on-Site monitoring well EA-2, which was installed within the filled excavation of the former waste oil USTs, at < 0.5 $\mu\text{g}/\text{L}$ and 1,700 $\mu\text{g}/\text{L}$. A February 1989 EA report stated "Well EA-2 was installed near SVCA point V10 (the location of the former waste oil tanks), the point of highest chlorinated hydrocarbons in the soil gas." A September 1989 EA report indicates a groundwater sample from EA-2 contained TCE at 2,700 $\mu\text{g}/\text{L}$, while the PCE concentration was < 25 $\mu\text{g}/\text{L}$. The 1989 groundwater data are additional

⁴ See Regional Water Board webpage:
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml

supporting evidence that TCE was released at the location of the former steel waste oil UST.

A pump and treat remediation system was operated by Chevron for about five years (1991 to 1996) to mitigate the high concentrations of CVOCs and petroleum hydrocarbons. This interim remedial measure was designed to utilize monitoring well EA-2, the well installed within the former waste oil UST pit. However, well MW-D was later added to the treatment system due to the detection of separate-phase petroleum hydrocarbons or “free product” downgradient of the fuel USTs. During the extraction and treatment of polluted groundwater, the maximum influent concentrations of PCE and TCE were 6,000 µg/L and 1,300 µg/L, both from a sample collected on April 3, 1995. In the last influent groundwater sample collected on January 3, 1996, the concentrations of PCE and TCE were 2,000 µg/L and 750 µg/L, respectively.

In May 2003, a groundwater sample from EA-2 contained PCE, TCE, cis-1,2-DCE, and vinyl chloride at concentrations of 3,100 µg/L, 3,600 µg/L, 2,900 µg/L, and 81 µg/L, respectively. EA-2 was destroyed by Chevron in March 2005.

For comparison, this Regional Water Board’s ESL for PCE and TCE where groundwater is considered a current or potential source of drinking water is 5 µg/L.

Based on the above information and the groundwater data depicted on Figures 6 and 9, Staff conclude that a distinct CVOC release from the former steel waste oil UST occurred.

CVOC Release from the Former Dry Cleaner

According to Chevron, a dry cleaner operated for 30 years at 1709 Contra Costa Boulevard (the southern part of Site 2), reportedly from 1956 until late 1986.

According to telephone books reviewed at the Pleasant Hill Public Library, a dry cleaning business operated on the former 1709 Contra Costa Boulevard property from at least 1962 through 1984. Telephone directories further provide evidence that One Hour Martinizing Cleaners operated at the Site in August 1961 and continued until at least late 1966. The concept to use PCE, a non-flammable solvent, in the dry cleaning business, was pioneered by chemist Henry Martin in the 1930s. It is common knowledge that One Hour Martinizing revolutionized the use of PCE in their dry cleaning machinery. PCE has been detected in the subsurface at various One Hour Martinizing franchises in the United States and California due to releases from leaking dry cleaning equipment, floor drains, and private sewer laterals.⁵

An August 1966 advertisement in a phone book included the words “ONE HOUR DRY CLEANING AT NO EXTRA CHARGE!” and “WE OPERATE OUR OWN CLEANING PLANT & SHIRT LAUNDRY.” This notice confirms that dry cleaning actually occurred

⁵ State Coalition for Remediation of Drycleaners:
http://www.drycleancoalition.org/search/?search_text=One+Hour+Martinizing&go=Search This search page lists a subset of One Hour Martinizing sites located in the United States where PCE was used and released to soil and/or groundwater.

at Site 2; the business was not merely a “drop off” location. By 1970, the dry cleaner was named “Pleasant Hill One Hour Cleaners.” A permit from the City of Pleasant Hill Building Department, dated August 17, 1971, describes proposed construction activities at 1709 Contra Costa Blvd. to consist of “REMODEL DRY CLEANERS.” The renovation of the dry cleaner coincided with a major reconstruction project for the Standard Oil service station at 1705 Contra Costa Boulevard.

In 1980 and 1985, the dry cleaner was named “J’s Pleasant Hill Cleaners.” An undated, unsigned “LEASE AGREEMENT” provided by Chevron, reportedly covering the former dry cleaner parcel and covering a five year time period between September 1, 1981, and August 31, 1986, states “Lessees shall use the premises for a dry cleaning establishment ...” The lease agreement contains the names of prior property owners, Ned and Marjorie P. Robinson and Philip M. Lehrman and Jane A. Lehrman, and the previous operators of the dry cleaner, Morris E. Jorgenson and Genoise M. Jorgenson. The November 1986 phone book contained no entry for the dry cleaner. A building permit application to Chevron for demolition of the dry cleaner building indicates the structure remained on-Site until December 1987.

As described below, there is evidence, mainly soil and groundwater data, that CVOCs were released at the location where a dry cleaner operated at Site 2. Several exploratory borings were advanced on the parcel, and soil and groundwater samples were found to contain PCE and related CVOCs that are typical degradation products of PCE in the environment (e.g., TCE, cis-1,2-DCE, and vinyl chloride).

Soil Data

High CVOC soil concentrations generally reflect a specific release point/area. As shown on Figure 4, the maximum detected concentration of PCE from a soil sample collected within the footprint of the former dry cleaner is 20 mg/kg, from boring CPT-14.

For comparison, soil concentrations of 0.7 mg/kg for PCE are sufficient to cause leaching to groundwater, according to this Regional Water Board’s Environmental Screening Levels (ESLs).⁶

The soil data depicted on Figures 4 and 7 likely reflects a distinct CVOC release from the former dry cleaner.

Soil Vapor Data

High soil vapor concentrations generally reflect a specific release point/area. Figures 5 and 8 show the maximum concentrations of PCE and TCE detected in various soil vapor samples collected within and around the former dry cleaner.

In 1988 four soil vapor probes were installed on the former dry cleaner parcel. The maximum detected concentrations of PCE and TCE were 19,347 $\mu\text{g}/\text{m}^3$ and 1,095 $\mu\text{g}/\text{m}^3$, respectively, from vapor probe V1 located approximately 25 feet east of EA-2. These

⁶ See Regional Water Board webpage:
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml

concentrations are significantly lower than the soil vapor samples collected adjacent to the former steel waste oil UST.

For comparison, this Regional Water Board's ESLs for the soil vapor to indoor air concern at commercial developments for PCE and TCE are 2,100 $\mu\text{g}/\text{m}^3$ and 3,000 $\mu\text{g}/\text{m}^3$, respectively.

Staff believes the western section of the previous building near soil boring CPT-14 is the area where the former dry cleaner equipment was present, however, no soil vapor samples have been collected in this area of Site 2. Nevertheless, the soil vapor data depicted on Figures 5 and 8 points to a distinct CVOC release from the former dry cleaner.

Groundwater

High groundwater concentrations generally reflect a specific release point/area. Figures 6 and 9 show the maximum concentrations of PCE and TCE detected in various groundwater samples collected within the former dry cleaner footprint. The maximum concentrations of PCE and TCE detected in groundwater were from samples collected and analyzed from CPT-14 were 630 $\mu\text{g}/\text{L}$ and 8 $\mu\text{g}/\text{L}$, respectively.

The groundwater data depicted on Figures 6 and 9 generally indicates a separate and distinct CVOC release from the former dry cleaner on Site 2.

Based on the above information, Staff concludes that there is substantial evidence that CVOCs were released from the dry cleaner on Site 2.

No Substantial Evidence of Upgradient CVOC Source

Chevron suggested, without providing direct evidence, that an upgradient source, or sources, could be contributing to the CVOCs detected in the subsurface beneath Site 2. There is no direct evidence the CVOCs detected in soil, soil vapor and groundwater beneath and downgradient of Site 2 originated from an upgradient (off-Site) source. The adjacent upgradient property (1725 Contra Costa Boulevard), formerly the Dean Pierce Paint Company, has a long history of use as a paint manufacturer and supplier. A 1,000-gallon steel UST was removed from the property on July 16, 1986. The UST reportedly contained "mineral spirits." Several holes were noted in the UST after it was exhumed, and two soil samples contained low concentrations of mineral spirits (referred to in the records as "paint thinner") up to 18 mg/kg. The environmental case for the leaking UST was closed by the Contra Costa County Health Services Department on July 20, 1994. The concentrations of mineral spirits found on the adjacent site were not substantial enough to migrate to Site 2 and, indeed, soil and groundwater samples from Site 2 do not contain constituents that would be indicative of "mineral spirits" or "paint thinner."

Conclusion

Based on the detections of PCE and TCE in soil, soil vapor, and groundwater samples collected and analyzed over the past 28 years (Table 1), Staff conclude that both of these CVOCs were used and released as a result of historic automotive repair and dry cleaning activities at Site 2. PCE and TCE soil concentrations are high at the former steel waste oil

UST location, while only PCE soil concentrations are high at the former dry cleaner. This data are consistent with a release from the former steel waste oil UST.

The discharges of both PCE and TCE are a result of common industry-wide practices for dry cleaners and automotive repair stations that operated from the 1950s to the mid-1980s in the San Francisco Bay area.

IV. Basis for Naming Chevron Under the Water Code as a Discharger at Site 2

Water Code Section 13304(a) provides the standard for naming parties to cleanup orders. It states in part:

Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.

Staff recommend naming Chevron as a discharger at Site 2 because:

1. Chevron was the owner/operator of the former steel waste oil UST that discharged contaminants which have migrated into waters of the State; and,
2. Chevron was the former landowner where a dry cleaner operated and discharged contaminants which have migrated into waters of the State.

Chevron was the Owner/Operator of the Former Steel Waste Oil UST

Water Code section 13304 allows the Water Board to name an operator or former operator to a cleanup order if there is substantial evidence that it discharged pollutants to soil or groundwater during its tenure. Staff concludes that there is substantial evidence that CVOCs were released from the steel waste oil UST at Site 2 during Chevron's tenure.

From 1972 to 1988, Standard Oil and its successor Chevron owned and/or and operated at the portion of Site 2 where CVOC discharges from a steel waste oil UST occurred. There is substantial soil, soil vapor, and groundwater data which demonstrates the steel UST released CVOCs to the environment (see section III above).

Chevron was the Former Landowner Where a Dry Cleaner Operated

Precedential State Water Board orders provide the framework for naming former landowners to cleanup orders. A former landowner can be named to a cleanup order if it meets all of these three criteria:

1. Former landowner owned the property at the time of the discharge;
2. Former landowner had knowledge of the activities that resulted in the discharge;
3. Former landowner had the legal ability to prevent the discharge.

In this case, Chevron meets all three criteria above.

From December 31, 1986, to March 2003, Chevron owned the parcel where a dry cleaner previously operated, had knowledge of the activities that resulted in the release of CVOCs to the environment, and had the legal ability and technical knowledge to clean up the discharge and prevent the discharge from migrating.

Not only did Chevron have knowledge of CVOC contamination before they purchased Site 2 and during their ownership of Site 2, Chevron had the legal ability to conduct source removal, and characterize and remediate to the maximum extent feasible to prevent further migration of the CVOCs. Although Chevron may contest the source of the contaminants (former dry cleaner versus steel waste oil UST), or whether the discharge occurred during Chevron's ownership or occupancy, State Board Orders clarify that "an actual movement of waste from soils to groundwater and from contaminated to uncontaminated ground water at the site ... is sufficient to constitute a 'discharge.'" (State Water Board Order 86-2). Given the shallow groundwater flow direction and gradient, and lack of any known subsurface barriers to CVOC migration, there is no question that the CVOC contamination Chevron discovered in 1986 continued to migrate or "discharge" during Chevron's ownership of Site 2.

Chevron had the legal ability to appropriately conduct remediation of CVOCs in soil and groundwater during their time of ownership to prevent the CVOCs from migrating beneath other properties. The interim groundwater pump and treat system installed by Chevron was not initiated in a timely manner (the system start-up occurred over four years after Chevron purchased Site 2), nor was the system effective in preventing off-Site plume migration.

Furthermore, Chevron was aware of a significant soil contamination problem at Site 2. Despite the high detections of PCE and TCE in shallow soil and soil vapor, no remediation efforts were undertaken by Chevron to reduce the mass of CVOCs in soil in the areas of the former steel waste oil UST or former dry cleaner. A fundamental tenet of proper site remediation is to conduct adequate source removal activities; such remediation was not conducted during Chevron's ownership of Site 2. As a result of deficient remedial efforts, CVOCs are currently present at concentrations well above risk-based standards, thereby posing a significant threat to human health and groundwater quality.

Previous UST Case Closure

Chevron may claim that the 2005 UST case closure precludes the Regional Water Board naming Chevron as a discharger now. The Regional Water Board's 2005 UST case closure at Site 2, however, was based on technical information available at the time. New information undermines the case closure rationale presented by Chevron. Therefore, the

previous case closure should not be used as a reason for excluding Chevron from the SCR issued for Site 2.

On September 13, 2004, Chevron issued a report to the Regional Water Board titled "Closure Request." The report concluded the extent of contamination had been adequately characterized as follows, "The subsurface impact has been defined to the degree necessary to determine if the site poses a threat to human health, the environment, or other sensitive nearby receptors."

Our January 14, 2005, the Regional Water Board issued a uniform case closure letter to Chevron Environmental Management Company (a subsidiary to Chevron) for the formerly leaking USTs at Site 2. As stated above, the case closure determination was based on Chevron's assertion that the extent of petroleum hydrocarbons and CVOCs in soil and groundwater had been adequately characterized, and that the residual chemicals did not pose a risk to human health, groundwater quality, and the environment. The Water Board's January 3, 2005, *Site Closure Summary* states, in part:

"Petroleum hydrocarbons and halogenated volatile organic compounds (HVOCs) will persist on the Site and into the public right-of-way of Linda Avenue, Dorris (sic) Drive and Contra Costa Boulevard. The petroleum hydrocarbons and HVOCs are stable, and both the petroleum hydrocarbons and HVOCs appear to be naturally attenuating, though the petroleum hydrocarbons are attenuating more rapidly."

"A site management plan will be maintained until the residual petroleum hydrocarbons and HVOCs no longer pose a threat. Currently, there appears to be not threat to public health, the environment or water resources. Future potential threats, though not expected, can be limited through implementation of a site management plan."

Based on data provided by Chevron, Staff believed the groundwater plume emanating from Site 2 was localized in extent, lay mainly beneath City streets, and did not extend to the north and northwest beneath the adjacent and downgradient Gregory Village Shopping Center. Additional new information clearly demonstrates the groundwater plume was not adequately characterized and, in fact, underlies the eastern part of the shopping center and commingles with a different CVOC plume associated with the former P&K Cleaners (Site 1).

In 2004, Chevron argued that "the site appears to present no significant risk to human health or the environment." The 2004 closure request included an evaluation of the postulated inhalation risk to workers within the existing service station building by using groundwater concentrations from an on-Site well (MW-C) and not the available historic soil vapor data. From their analysis, Chevron concluded "The constituents of concern are below the screening level applied by the RWQCB-SFBR to identify commercial risk."

In 2004-2005, vapor intrusion at dry cleaner CVOC release sites was not given a lot of regulatory attention. In 2011, the California Department of Toxic Substances Control issued vapor intrusion guidance which recommends lower indoor air and soil vapor screening levels for vapor intrusion and a rigorous process to evaluate and mitigate vapor intrusion. Similarly, the Regional Water Board lowered indoor air and soil vapor in 2013 ESLs. The current screening levels for CVOCs in soil vapor and groundwater are

dramatically exceeded at Site 2. High CVOC concentrations in soil vapor pose a significant risk to on-Site workers, building occupants within the Gregory Village Shopping Center, and other commercial and residential properties adjacent to and near Site 2 (and also near Site 1). For these reasons, the site meets the criteria for re-opening sites.

V. Evidence of Commingled CVOC Plume

There is evidence that the CVOC plume from Site 2 migrated in groundwater to the north and northwest and beneath the Gregory Village Shopping Center, and commingled with the CVOC plume associated with Site 1, which has migrated beneath a residential subdivision north of Site 1. This is important because in order to protect human health and groundwater quality, the different sources of the CVOC contamination must be cleaned up to appropriate levels. Oftentimes, commingled groundwater plumes are more spatially extensive and contain higher contaminant concentrations than a plume from a single source.

Figure 3 shows the maximum concentrations of PCE detected in groundwater for both Site 1 and Site 2. Evidence of a commingled plume includes the following:

- In 1997, during a due diligence investigation for GVP, CVOCs were detected in grab groundwater samples collected from multiple soil borings advanced upgradient and cross-gradient of Site 1. For example, PCE and TCE were detected in GS-3, a soil boring advanced about 25 feet upgradient/southeast of Site 1 at 830 µg/L and 240 µg/L. (see figure 3).
- PCE, TCE, and other CVOCs were detected in shallow groundwater beneath and adjacent to the hydraulically-upgradient Chevron gas station/former dry cleaner (1705 Contra Costa Boulevard), with detections of PCE up to 5,000 µg/L from an off-site groundwater sample collected in 1989. Prior to the 2005 destruction of groundwater monitoring wells by Chevron for the fuel UST case at Site 2, PCE, TCE, cis-1,2-DCE, and vinyl chloride were detected in groundwater samples at concentrations up to 3,100 µg/L, 3,600 µg/L, 2,900 µg/L, and 81 µg/L, respectively (see figure 3).
- On December 22, 2009, GVP advanced multiple borings and completed a grab groundwater investigation within the southeastern part of their property, downgradient of Site 2 and upgradient of Site 1. Several CVOCs (including PCE, TCE, cis-1,2-DCE, and trans-1,2-DCE), total petroleum hydrocarbons reported as gasoline (TPH-g), benzene, toluene, ethylbenzene and xylenes (the BTEX compounds), and MtBE, a gasoline additive, were detected in groundwater samples collected in the eastern main parking lot by Site 1 (see figure 3). Both the petroleum-related constituents and the CVOCs are consistent with the contaminants found in soil and groundwater beneath Site 2. The concentrations and distribution of these contaminants in groundwater are indicative of a plume that migrated off-Site from Site 2.
- TPH-g and MtBE (constituents related to automotive fuel releases), and several CVOCs, were detected in a shallow groundwater sample collected from CPT-1,

a boring approximately 75 feet southeast (upgradient) of Site 1 (see figure 3).and advanced by Chevron in 2011. The presence of TPH-g, MtBE, and CVOCs in shallow groundwater upgradient of Site 1 indicate these chemicals migrated in a north to northwesterly direction from Site 2.

VI. Central Contra Costa Sanitary District (CCCSD) is not a Discharger

In a standard evaluation of whether a party is a discharger, Regional Water Board Staff considers whether the party:

- owned the property where the discharge occurred;
- had knowledge of the discharge or activities that caused the discharge; and,
- had legal ability to prevent the discharge.

Based on the analysis presented below, Staff concludes that there is insufficient data to assert that a discharge from CCCSD's sewer lines resulted in the contamination at issue in the two SCRs.

Because of numerous policy considerations, as well as guidance from the California courts,⁷ Regional Water Boards historically have not named sewer owners/operators as dischargers merely because they owned or operated a sewer system which released contamination. Staff is only aware of one instance in which a Regional Water Board named a sewer owner/operator as a discharger, and in that case there was evidence to support each of the following criteria:

- 1) There was a release from the sewer main that contributed to the plume;
- 2) The sewer owner/operator knew of leaks and failed to repair them;
- 3) The sewers were in poor condition and/or were not maintained; and,
- 4) The sewer owner/operator was aware of/or permitted discharges into a leaking sewer.

In order to determine whether CCCSD should be named as a discharger, Staff considered evidence submitted by CCCSD and GVP and compared it to the four criteria above. Staff has reviewed evidence submitted by GVP and CCCSD and

⁷ GVP notes in their submission that Porter-Cologne (Water Code section 13304) is a strict liability statute. The cases which provide guidance here pertain to similar claims brought under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) concerning the responsibility of a sewer owner/operator for contamination resulting from releases from sewers. CERCLA, like Water Code section 13304, is a strict liability statute, and while these cases are not binding precedent, they do provide useful guidance. In these cases, the courts have refrained from identifying sewer owners/operators as "responsible parties" (the CERCLA rough equivalent of the Water Code's "discharger") merely because they owned or operated a sewer system. (*See, e.g., Fireman's Fund Insurance Co. v. City of Lodi* (9th Cir. 2002) 302 F.3d 928, 946 ["it is doubtful whether Lodi may be considered a PRP merely as a result of operating its municipal sewer system"]; *Lincoln Properties, Ltd. V. Higgins* (E.D. Cal. 1992) 823 F.Supp. 1528, 1542-43 ["To hold the County liable for its 'normal' activities in owning and maintaining the sewer line and wells would be an anomalous result]; *Adobe Lumber, Inc. v. Hellman* (E.D. Cal. 2009) 658 F.Supp.2d 1188, 1205-06 [declined to find that the City was an innocent party where the City knew of dry cleaning operation, had a "reactive" sewer maintenance management and no studies of leakage].) Staff finds the criteria from these cases useful in ensuring a complete analysis of the facts concerning CCCSD.

concluded that CCCSD is not an appropriate discharger because the sewer lines in the Gregory Village area of Pleasant Hill are in good condition. There is no direct evidence that leaking sewer lines under CCCSD ownership have caused or contributed significantly to the groundwater contamination. None of the above four criteria are met in this case, as explained in more detail below.

1. No evidence that the sewer system contributed to the groundwater plume

While there is evidence of incidental leakage from the sanitary sewer lines, there is no direct evidence the leakage contributed substantially to the creation of the CVOC commingled groundwater plume.

We conclude, based upon a review of records submitted by GVP and CCCSD, that the overall sanitary sewer system in the Gregory Village area of Pleasant Hill appears to have been well maintained and is in generally good condition. Inspections are routinely conducted, and when clogs and breaks in pipes are discovered, they are routinely investigated and repaired.

Fate and transport modeling (PES Environmental, Inc., 2013) adequately demonstrates the levels and locations of contamination in the environment resulted from the releases of CVOCs directly from past dry cleaning and automotive repair businesses, including releases from private sewer laterals, but not directly from the sewage conveyance system owned and operated by CCCSD.^{8 9}

GVP asserts that “at least three suspected sewer leakage locations that have resulted in chlorinated hydrocarbon releases and detections in the subsurface.”¹⁰ Staff addresses each of these locations below:

- Apparent Source Area Near the Intersection of Shirley Drive and Cynthia Drive

GVP identified an area near the intersection of Shirley Drive and Cynthia Drive and manhole M54, an area within the residential subdivision, as an “apparent source area.” based on the detection of elevated concentrations of PCE in soil vapor. Additionally, records from CCCSD comment on cracks, open joints, and root infiltration in a sewer line beneath Shirley Drive. CCCSD notes that sewer lines in this area “collect sewage from a residential neighborhood and would not have any PCE in them.” Staff does not find this location to be a source area.

- Apparent Source Area in the Vicinity of Manhole M46

GVP presents several data points and the argument that these points demonstrate a source of PCE in close proximity to manhole M46. However, the highest concentrations of PCE in soil vapor samples were at lower depths near the

⁸ CCCSD, May 28, 2013, CCCSD Responses to 13267 Letter Questions, Pages 2-5.

⁹ CCCSD, December 18, 2013, Summary of Response to Water Board 13267 Letter, Pages 1-3.

¹⁰ GVP Submission, July 3, 2012, at pp. 8-11.

groundwater table, indicating that shallow groundwater is the likely source of the CVOCs rather than the soil surrounding the sewer lines.

Staff conclude that the data suggests separate groundwater plumes migrated from the former dry cleaners at Sites 1 and 2, and the former steel waste oil UST at Site 2, to the north-northwest, generally diminishing in concentration from the source areas. Within the commingled groundwater plume, there are a number of wells with variable contaminant concentrations. GVP focused on a single grab groundwater sample from a higher elevation and compared it with deeper samples from groundwater wells. Staff does not find this single data set to be compelling evidence of a source area based on the data originating from different monitoring well screen intervals.

With respect to GVP's evidence and contentions regarding the presence of CVOCs between manholes M44 and M46 and the adjacent parcels, the CCCSD submission notes that the "PCE-laden wastewater from former dry cleaning operations at Gregory Village Shopping Center and at the Chevron Service Station site located at 1705 Contra Costa Boulevard did not flow in the sanitary sewer from manhole M44 to manhole M46 and is not a source for PCE found at adjacent parcels." Staff finds that CVOCs at these locations could not be from a release along the sanitary sewer lines.

- Suspected Source Area in Linda Drive Along Sewer

The area along Linda Drive, a street establishing the western boundary of Site 2, is an area where Staff specifically identifies a need for additional data. The original vitrified clay sewer line in this area was replaced in 1987-1988 as part of Chevron's station upgrade project, and the new cast iron line was put in a location different than the original clay line. The original sewer line served both the former Standard Oil automotive repair station and the former dry cleaner. CCCSD has supplied several figures which show the locations of both the original and existing sewer lines. There is insufficient soil and groundwater data to reach the conclusion that the older sewer line was a release point.

2. No evidence of the sewer operator's knowledge that the sewer system is leaking or needs repair

CCCSD asserts that it had no knowledge that the sewer collection system in the area of the Gregory Village Shopping Center and Site 2 leaked significantly in the past or is currently leaking and needs repair.^{11 12} Neither Chevron nor GVP have presented evidence to the contrary. CCCSD submitted evidence of a robust maintenance program, which included video inspections, regular cleaning of the sewer pipes, and spot repairs, to identify and address problem areas. These measures are designed to ensure the overall integrity of the sewer conveyance system. There are many

¹¹ CCCSD, May 28, 2013, CCCSD Responses to 13267 Letter Questions, Pages 5-11.

¹² CCCSD, December 18, 2013, Summary of Response to Water Board 13267 Letter, Pages 3-4.

instances where minor leaks in the sewer mains were detected and repaired, but there is no evidence of major leakage or deferred maintenance of the sewer lines by CCCSD.

GVP submitted information concerning CCCSD's alleged failing sewer lines¹³, but admits that "GVP has little information concerning how well or how poorly the system operated ... near the Site prior to the mid-1990s." It is Staff understanding that dry cleaning operations ceased at Site 1 in 1991 and at Site 2 in 1986. Evidence of a "failing sewer system" in the late 1990s or 2000s is not indicative of CCCSD's behavior during the time when the dry cleaners would have disposed of separator wastewater down drains and/or private sewer laterals.

GVP documented two instances from the relevant time period above that Staff specifically reviews and addresses here:

Instance 1

- January 19, 1979 - CCCSD inspection notes identify a sunken spot in Shirley Drive at Luella Drive.

GVP identifies a "sunken spot" in a sewer line in Shirley Drive at Luella Drive.¹⁴ A January 2, 2003, drawing provided by CCCSD entitled "Collection System Renovations – Spot Repairs" shows that a 10-foot section of 6-inch diameter vitrified clay pipe in Luella Drive leading from manhole M58 was repaired. CCCSD's repair of the sanitary sewer in this location suggests reasonable sewer maintenance.

Instance 2

- March 10, 1977 – A "Daily Maintenance Report" describes the condition of the sewer main in Linda Drive during the installation of a "tee" connection. The line at the tee connection located "153' up from M.H. at Linda Dr and Doris Dr" is described as "in very poor shape has lots of cracks."

Linda Drive forms the western boundary of Site 2, and is an area where Staff has specifically identified a need for additional soil and groundwater data. Staff understands that the original sewer line in this area was replaced as part of a Chevron service station construction project in 1987-1988, and that the new sewer was put in a different location from the original line.

According to GVP submissions concerning the more recent condition (e.g., 1990s-2000s) of CCCSD's sewer system, Staff does not find evidence of major repairs needed on the CCCSD sewer lines in the area of the groundwater contamination. There is no tangible evidence CCCSD was aware of any needed repair beyond routine maintenance.

¹³ GVP Submission, July 3, 2012, pp. 6-8

¹⁴ GVP Submission, July 3, 2012, p. 6

3. No evidence of poor maintenance or inspection schedules

CCCSD provided numerous records pertaining to the maintenance and inspection of the sanitary sewer lines in the areas around Site 1 and Site 2 (CCCSD, 2013). Staff reviewed the information, and concurs that the sewer lines owned and operated by CCCSD were maintained and inspected appropriately since the 1970s.

GVP submitted information concerning CCCSD's alleged failure to inspect and maintain sewer lines.¹⁵ Similar to section VI.B.2 above concerning leaks in the sewer system, GVP's submission indicates that "GVP has little information concerning ... how well or how poorly CCCSD inspected and maintained the system near the Site prior to the mid-1990s." Evidence of a "failing sewer system" in the late 1990s or 2000s is not indicative of the condition of the sewer system during the time when the dry cleaners would have disposed of separator wastewater to the sanitary sewer lines.

4. No evidence that the sewer operator knew of or permitted discharges of separator wastewater into the leaking sewers

Staff reviewed information provided by CCCSD and GVP on the question of whether CCCSD permitted or knew that dry cleaners discharged separator wastewater into the sanitary sewers. GVP has not provided any evidence that CCCSD knew of separator wastewater disposal from the dry cleaners at either Site 1 or Site 2 during the relevant time period.

Staff does not agree with CCCSD that discharges of PCE-laden wastewater into the sewer system have been prohibited since 1953. CCCSD maintains that any discharge of PCE to the sewer collection system would have been illegal. However, documents reveal a complete prohibition of PCE-laden wastewater to the main sewer lines did not go into effect until 2007.¹⁶

Prior to 2007, CCCSD allowed for PCE to be discharged to the sanitary sewer within specified limits. For example, Ordinance No. 99 (adopted on July 11, 1974) allowed the discharge of "Total Identifiable Chlorinated Hydrocarbons" to sanitary sewers at a concentration not exceeding 0.002 mg/L for "50% of time" and not exceeding 0.004 mg/L for "10% of time." CCCSD Ordinance No. 147 (adopted on August 27, 1981) states "No person shall discharge wastewater containing in excess of "0.50 mg/l total identifiable chlorinated hydrocarbons."

The allowable PCE discharge concentrations before 2007 were far lower than what would be expected in PCE-impacted wastewater, which would be on the order of 150,000 µg/L.¹⁷ Neither GVP nor Chevron have provided any evidence that CCCSD had specific knowledge at any time that PCE-laden wastewater in excess of the

¹⁵ GVP Submission, July 3, 2012, pp. 6-8

¹⁶ CCCSD, May 28, 2013, Attachment E

¹⁷ Dry Cleaners – A Major Source of PCE in Ground Water, March 27, 1992
http://www.swrcb.ca.gov/rwqcb5/water_issues/site_cleanup/dry_cleaner_rpt.pdf

Ordinance's low levels was being discharged into their system from either Site 1 or Site 2.¹⁸

Attachments

- Figure 1:** Site Vicinity Map
- Figure 2:** Site Location Map
- Figure 3:** Maximum PCE Concentrations in Groundwater at 1643 and 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County
- Figure 4:** Maximum PCE Concentrations in Soil at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County
- Figure 5:** Maximum PCE Concentrations in Soil Vapor at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County
- Figure 6:** Maximum PCE Concentrations in Groundwater at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County
- Figure 7:** Maximum TCE Concentrations in Soil at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County
- Figure 8:** Maximum TCE Concentrations in Soil Vapor at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County
- Figure 9:** Maximum TCE Concentrations in Groundwater at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County

- Table 1:** Historic Maximum Detected Concentrations of Volatile Organic Compounds (VOCs)

¹⁸ CCCSD, May 28, 2013, Attachment E

Figure 1: Site Vicinity Map

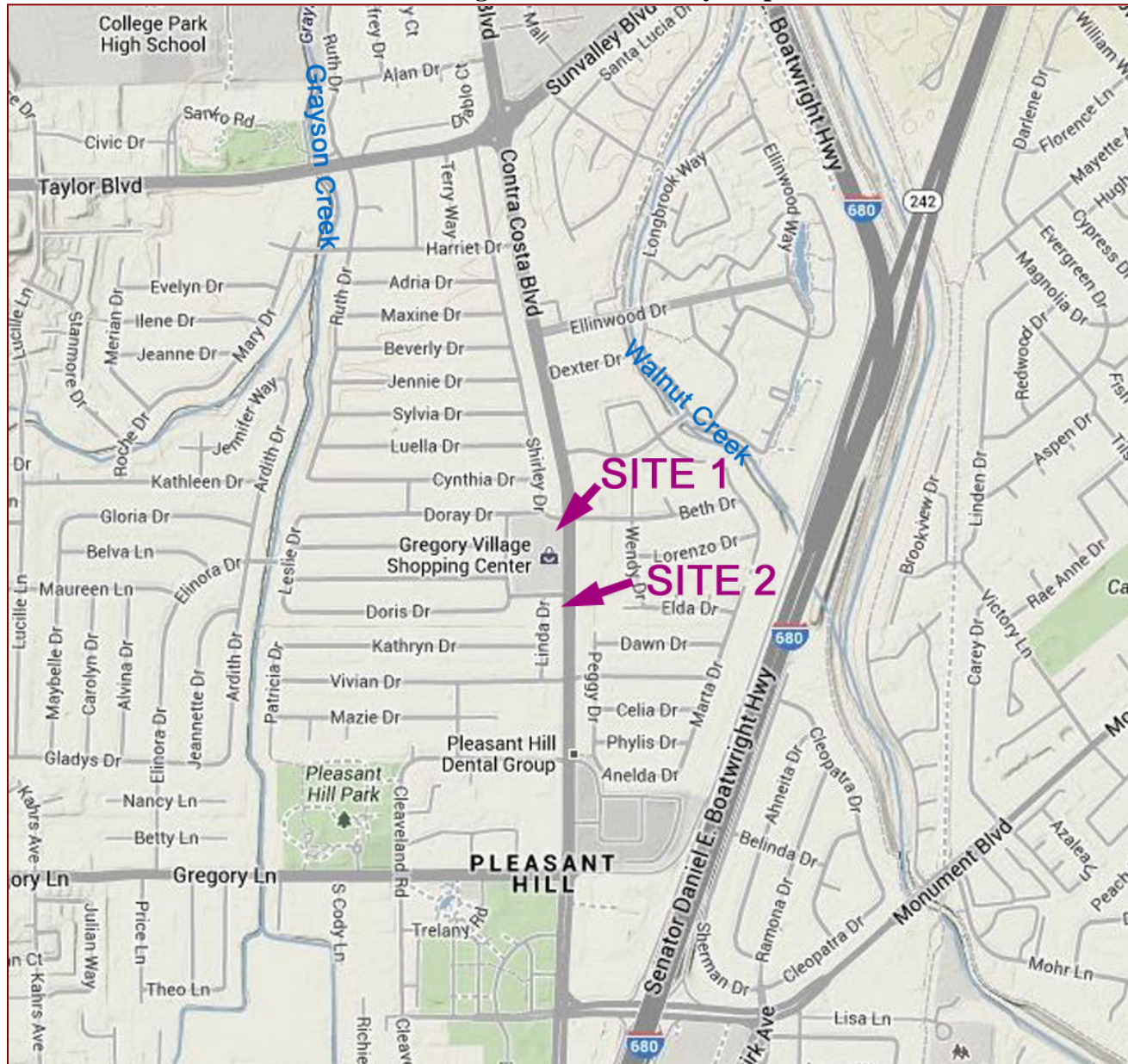


Figure 2: Site Location Map

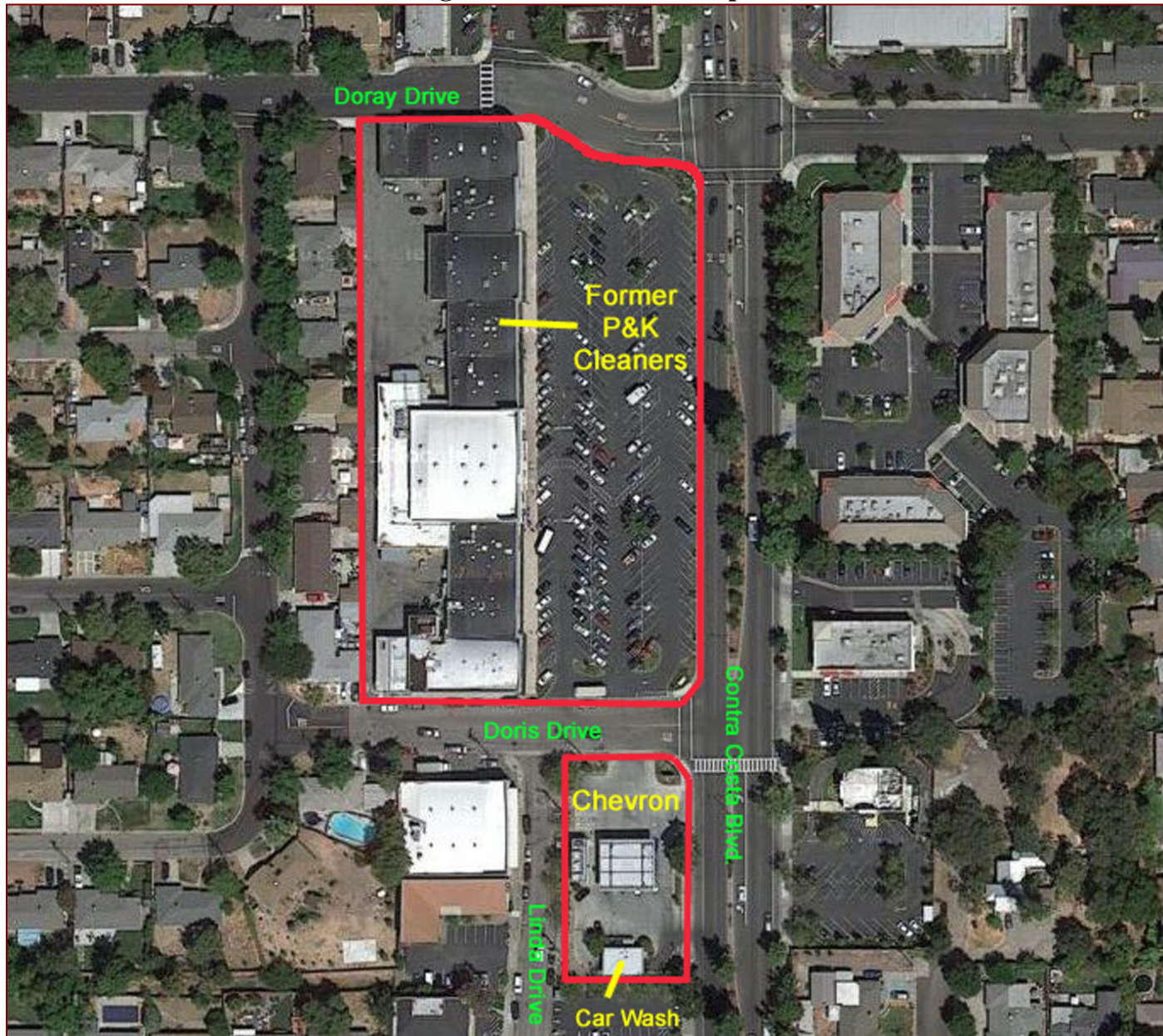


Figure 3: Maximum PCE Concentrations in Groundwater at 1643 and 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County

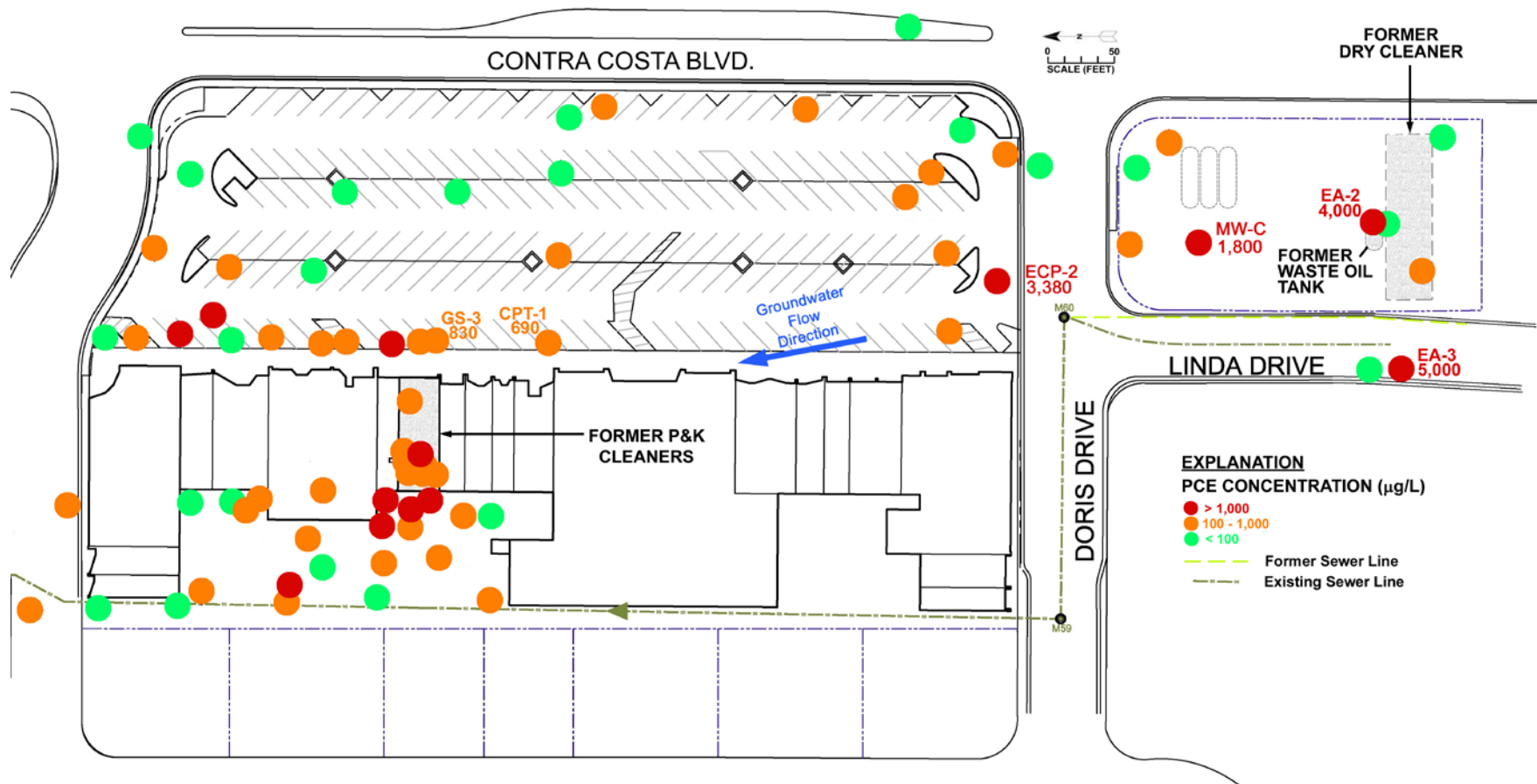


Figure 4: Maximum PCE Concentrations in Soil at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County

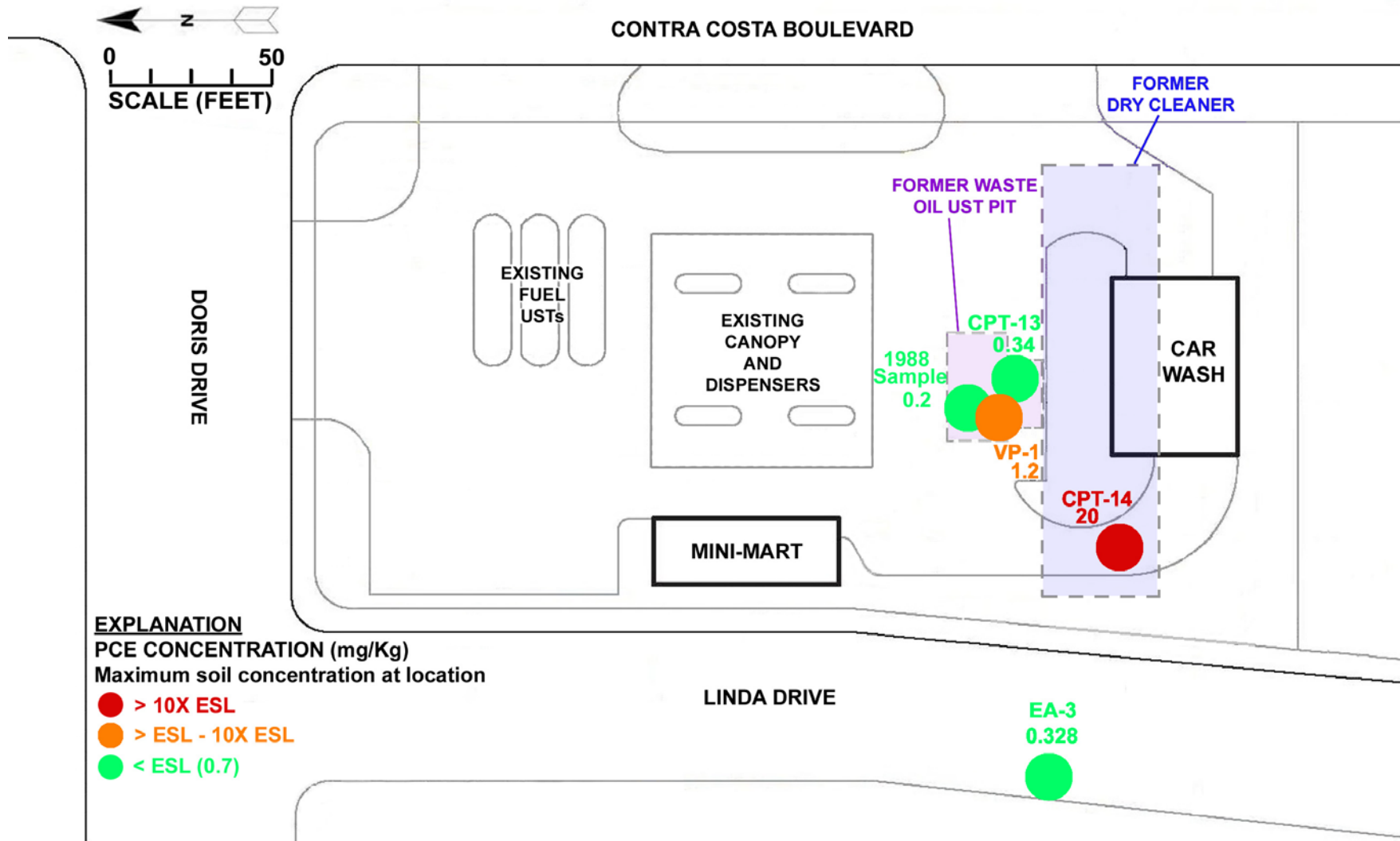


Figure 5: Maximum PCE Concentrations in Soil Vapor at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County

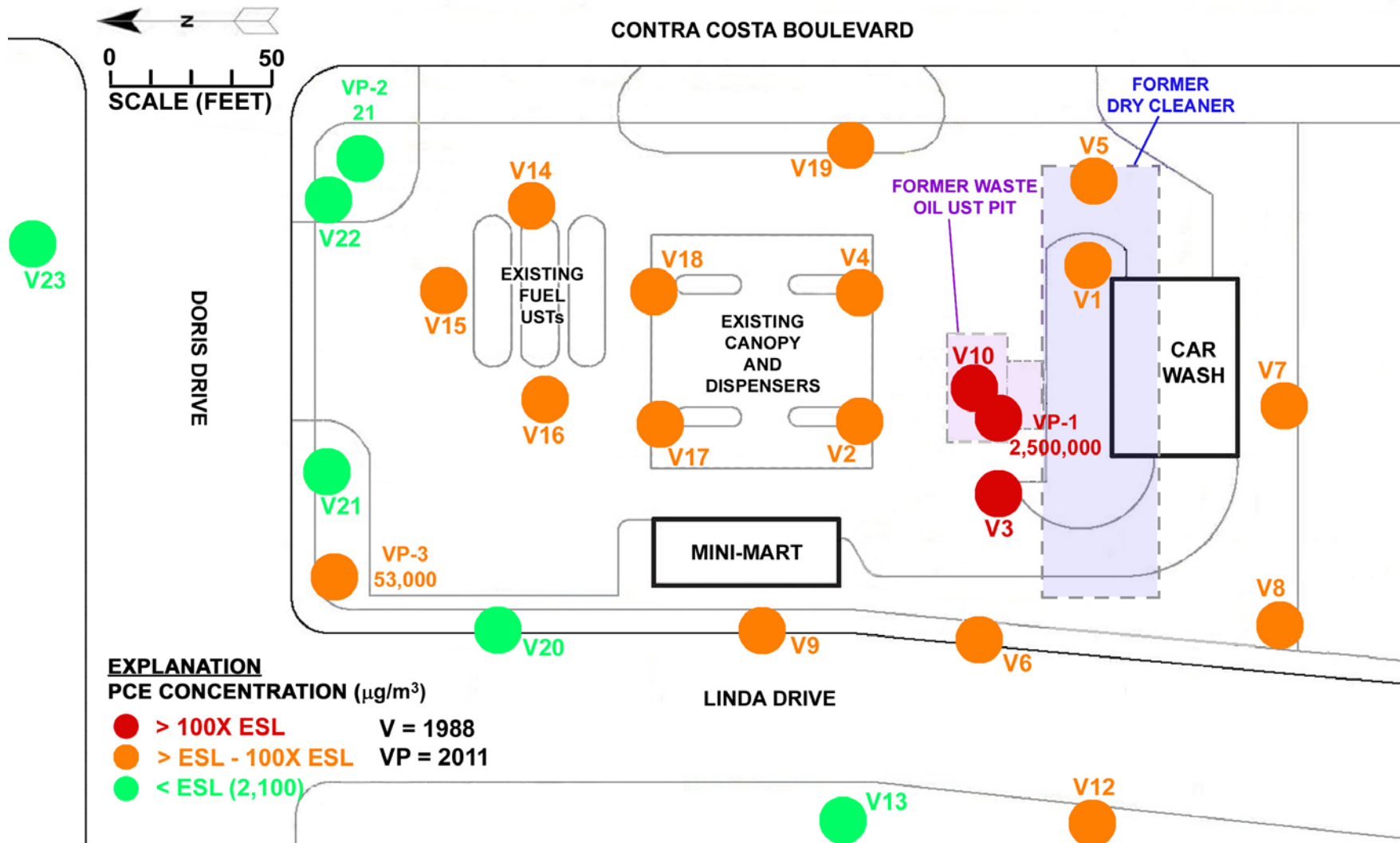


Figure 6: Maximum PCE Concentrations in Groundwater at the 1705 Contra Costa Boulevard Property and Immediate Vicinity, Pleasant Hill, Contra Costa County

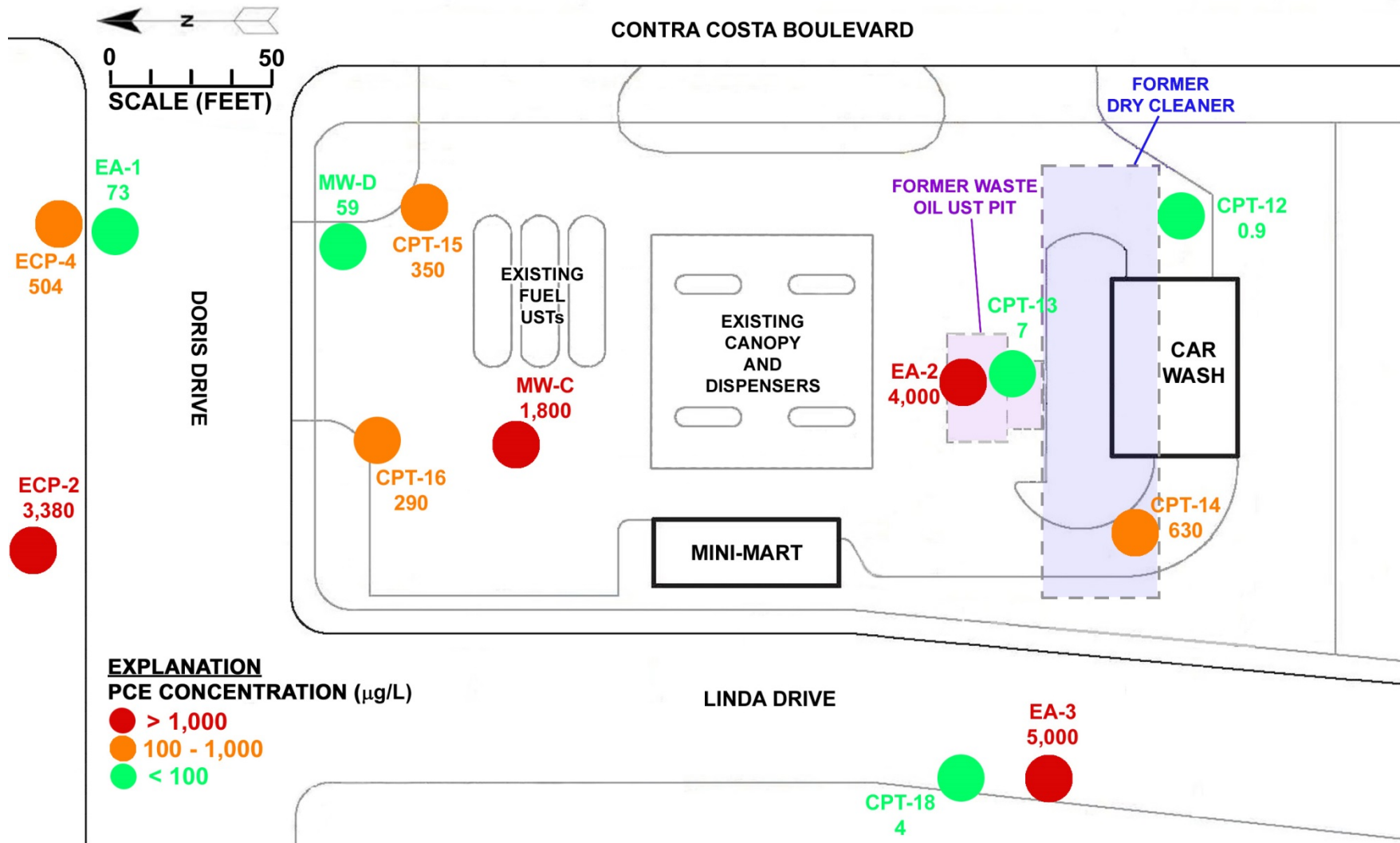


Figure 7: Maximum TCE Concentrations in Soil at the 1705 Contra Costa Boulevard Property and Immediate Vicinity, Pleasant Hill, Contra Costa County

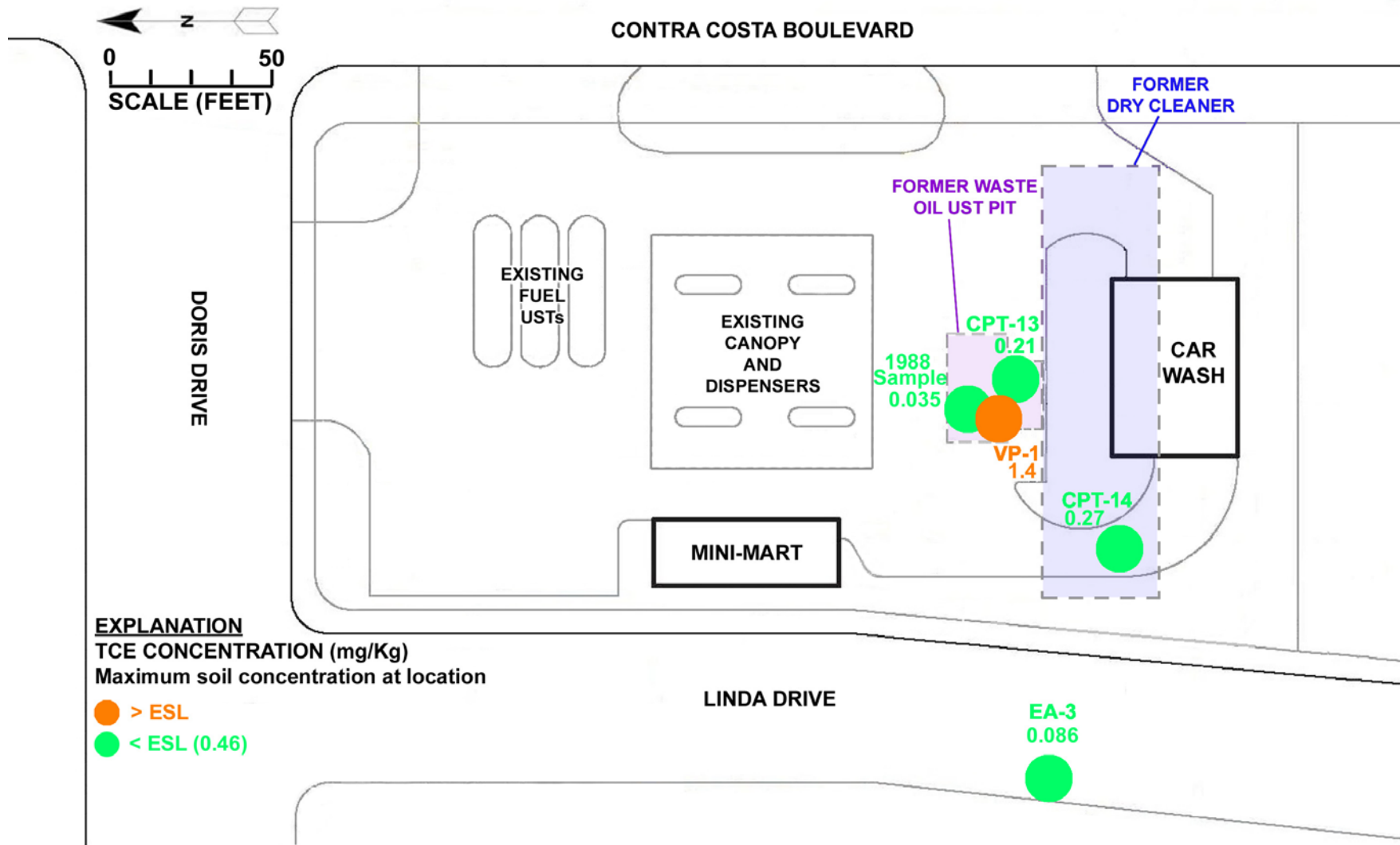


Figure 8: Maximum TCE Concentrations in Soil Vapor at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County

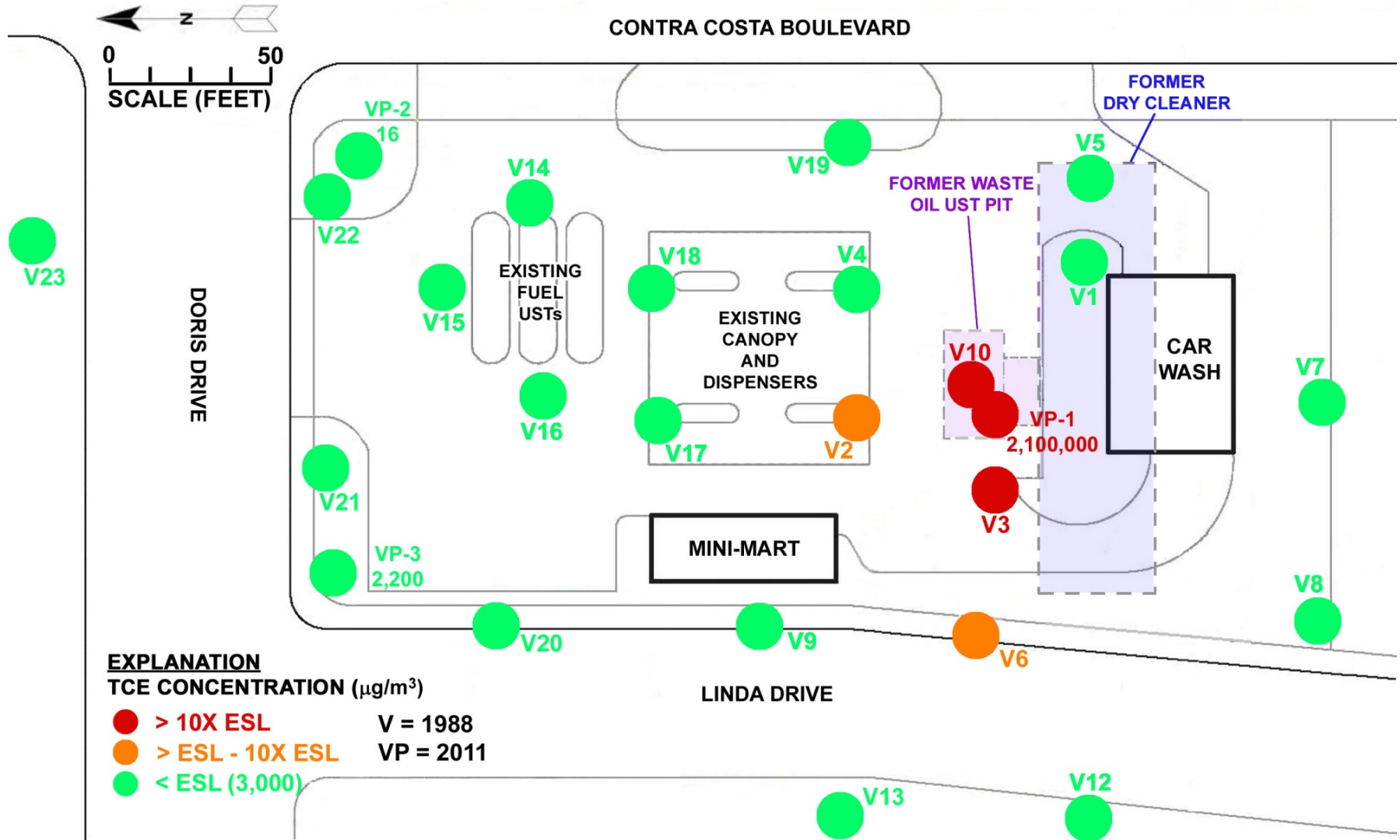


Figure 9: Maximum TCE Concentrations in Groundwater at 1705 Contra Costa Boulevard and Immediate Vicinity, Pleasant Hill, Contra Costa County

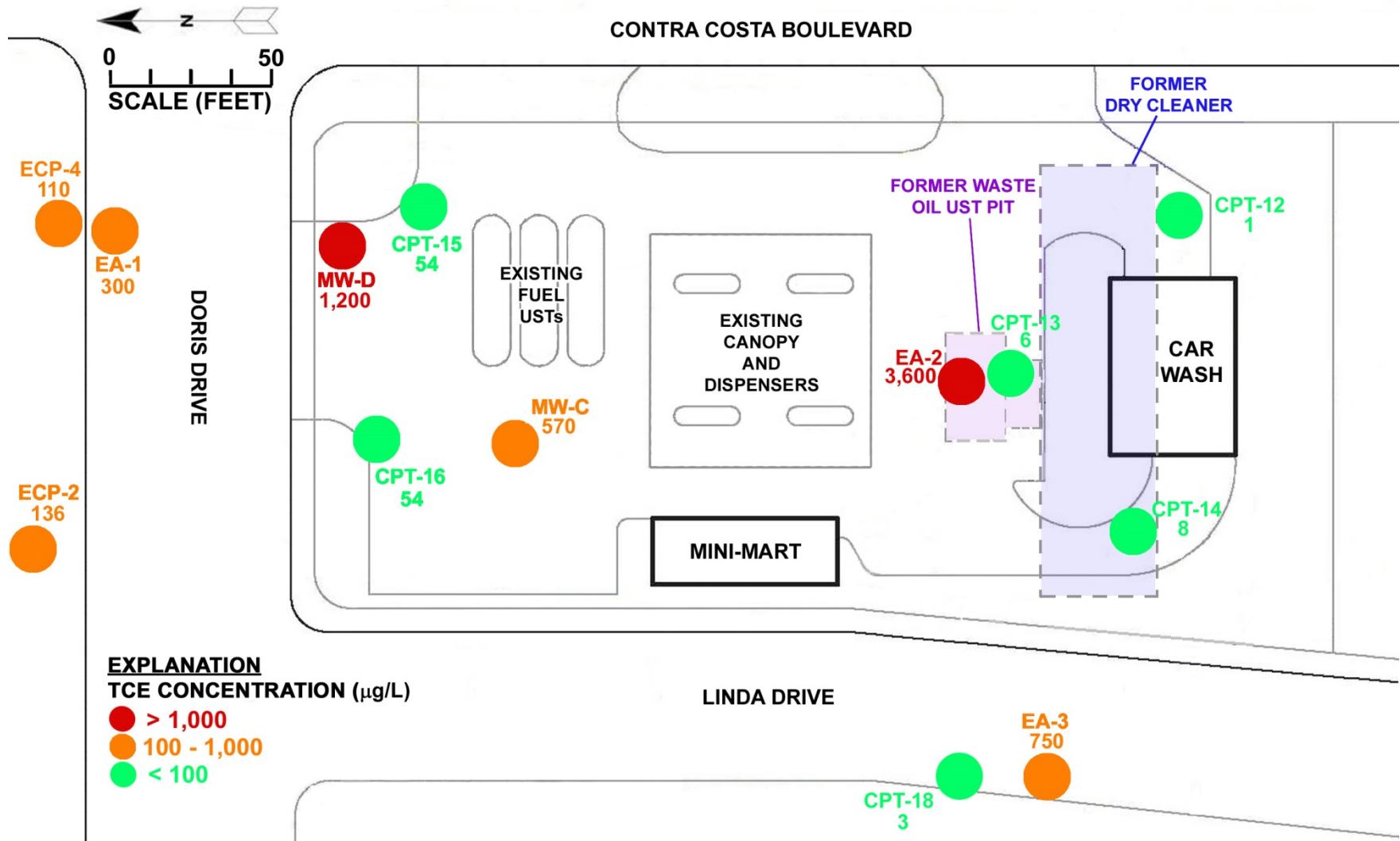


Table 1: Historic Maximum Detected Concentrations of Volatile Organic Compounds (VOCs)

Chemical/Compound	SITE 1 (P&K Cleaners)			SITE 2 (Chevron)		
	Soil (mg/kg)	Groundwater (µg/L)	Soil Vapor (µg/m ³)	Soil (mg/kg)	Groundwater (µg/L)	Soil Vapor (µg/m ³)
PCE	5.3	27,000	1,490,000	20	5,000	3,247,700
TCE	0.03	130	<12,900	1.4	3,600	2,100,000
cis-1,2-DCE	<0.04	<40	<9,520	0.45	2,900	410,000
Vinyl chloride	<0.05	<50	<6,130	<48	910	<5,200
Benzene	NA	NA	40.2	2.2	SPH (12,000 dissolved)	520,733
TPH-g	NA	620	NA	80	SPH (110,000 dissolved)	916,667
MtBE	NA	140	NA	<1	540	<7,300*

Key

mg/kg Micrograms per kilogram

µg/L Micrograms per liter

µg/m³ Micrograms per cubic meter

NA Not Applicable (site is not a source of these compounds) or Not Analyzed

SPH Separate-phase hydrocarbons/free product detected in on-Site wells

* Although the minimum laboratory detection limit is typically determined by the appropriate screening value, due to dilution of sample (most likely because of the presence of chlorinated compounds in high concentrations), the reporting limit was elevated.